VOLODKIN, V.

Cuba Si! IUn.tekh. 5 no.7:62-64 Jl '61. (MIRA 15:1)
(Russia--Relations (General) with Cuba)
(Cuba--Relations (General) with Russia)

VOLODKIN, V.N., nauchnyy sotrudnik

Copying apparatus for the objective registration of the degree of rearrangement of the dental rows during orthodontic treatment. Trudy Nauch.-issl.inst.stom. no.10:200-203 '62. (MIRA 15:10)
(ORTHODONTIA--EQUIPMENT AND SUPPLIES)

VOLODKIN, V.N., nauchnyy sotrudnik

Technique of preparing and the experience in the clinical use of a slide "pusher" for the treatment of palatally located incisors. Trudy Nauch.-issl.inst.stom. no.10:194-199 '62. (MIRA 15:10)
(TEETH--ABNORMITIES AND DEFORMITIES)
(DENTAL INSTRUMENTS AND APPARATUS)

VOLOD'KO, A., serzhant

From one extreme to the other. Starsh.-serzh. no.10:10 O '61. (MIRA 15:2)

(Russia--Army--Noncommissioned officers)

VOLODKO, A., inzh.-kapitan, kand.tekhn.nauk

Spin-up and stop of the helicopter rotor in windy weather. Av. i kosm. 47 no.2:49-54 F '65. (MIRA 18:4)

L 13645-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3003113 S/0056/63/044/006/1869/1872

AUTHOR: Bogachev, N. P.; Volod'ko, A. G.; Grigor'yev, Ye. L.; Merekov, Yu. P.

TITLE: Emission of Li sup 8 fragments in the disintegration of Ag and Br nuclei by 19 BeV protons

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1869-1872

TOPIC TAGS: emission of lithium fragments, disintegration of Ag nuclei, disintegration of Br nuclei, evaporation model

ABSTRACT: The main characteristics of the emission of Li sup 8 in disintegrations with more than 8 black prongs, such as the yield per disintegration, the energy and angular distributions, and some information concerning the emission of two fragments in one disintegration, are presented as results of a study which continues similar earlier work (ZhETF v. 44, 493, 1963) at lower proton energy. The compatibility with the evaporation scheme, which was found in the earlier experiments, is found to apply in the present range of energies, too. "The authors thank Prof. V. P. Dzhelepov for continuous interest and attention to the work, and also Prof. I. I. Gurevich and B. A. nikol'skiy, who graciously furnished emulsions irradiated in the CERN proton

Card 1/2 Joint Inst. of Nuclear Research

BOGACHEV, N.P.; VOLOD'KO, A.G.; GRIGOR'YEV, Ye.L.; MEREKOV, Yu.P.

Emission of Li^8 fragments in the disintegration of Ag and Br nuclei by 19 Bev. protons. Zhur. eksp. i teor. fiz. 44 no.6: 1869-1872 Je '63. (MIRA 16:6)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Nuclear fission)
(Photography, Particle track)

VOLOD'KO, A.V.

USSR / Cultivated Plants. Potatoes. Vegetables. Melons. M

Abs Jour : Ref Zhur - Biol., No 8, 1958, No 34688

Author : Volod'ko, A.V.
Inst : Agricultural Institute of Leningrad
Title : Raising of Potato Crops on Peat Soil in the Northwestern Zone.

Orig Pub : Zap. Leningr. s. kh. in-ta, 1956, vyp. 11, 310-315.

Abstract : Farms in the Leningradskaya Oblast with peat soils showed a higher yield of tubers (by 5 to 10 t/h more), than crops raised on mineral soils; this is explained by the better regimen of the peat soil with regard to water, heat, air and nutrition. Preference of peat soils for raising high quality potato crops is stressed.

Card 1/1

VOLOD'KO, A. V.

"Methods for Improving the Seed Qualities of Potatoes in Leningradskaya Oblast Depending Upon Cultivation Conditions." Cand Agr Sci, All-Union Inst of Plant Growing, Leningrad, 1954. (RZhBiol, No 7, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

VOLOD'KO, F.P., slesar'.

Mill for grinding catalyzer deposit. Mesl.-zhir.prom. 21 no.3: 37 '56. (MLRA 9:8)

1. Khar'kovskiy zhirkombinat.
(Crushing machinery)

VOLOD'KO, F. Ye.

Volod'ko, F. Ye. "Certain problems in the recovery of wheat and barley from smut," Izvestiya Akad. nauk BSSR, 1949, No. 2, p. 63-74, - Bibliog: 24 items.

SO: U-411, 17 July 53, (Letopis' Zhurnal 'nykh Statey, No. 20, 1949).

VOLOD'KO, G.A.

Improved recording system. Put' i put. khoz. no.6:18-19 Je '59. (MIRA 12:10)

1. Nachal'nik vagona-puteizmeritelya, g. Gor'kiy.
(Railroads--Equipment and supplies)
(Recording instruments)

VOLOD'KO, G.A.

Ways to improve the performance of track measuring cars. Put' i put. khoz. 7 no.6:15 '63. (MIRA 16:7)

1. Nachal'nik vagona-puteizmeritelya Gor'kovskoy dorogi.
(Railroads—Equipment and supplies)

3(5), 30(1) SOV/99-59-10-4/11

AUTHOR: Volod'ko, I.F., Candidate of Engineering Sciences

TITLE: Estimating the Output of Wells With Due Regard to the Hydraulics of the Filter Zone

PERIODICAL: Gidrotekhnika i melioratsiya, 1959, Nr 10, pp 33-40 (USSR)

ABSTRACT: Underground water presents a valuable source of water for irrigation and watering purposes. To estimate in advance the possible output of a proposed well, the most reliable criterion is the rate at which the water flows into the filter. The output of a well would depend on the product of the filter area and the flow-in rate. Zikhardt or Abramov's empirical formulae could be used for calculating the flow-in rate. From theoretical studies, however, the author has compiled a set of tables (Figs 1-3) to show the maximum output of wells with different sizes and types of filters, still preserving the Darcy law. The critical flow-in rate for different filter materials is: very fine

Card 1/2

Estimating the Output of Wells With Due Regard to the Hydralics of the Filter Zone

sand 11-111 m/24 hrs, fine sand 111-240, medium sand 240-280, coarse sand 280-400 and gravel sand 400-550 m/24 hrs. In practice, it was found, flow-in rates do not exceed these theoretical values and they may therefore be used as a guide. To achieve as great an output as possible from a well, the filter should have maximum diameter and length. In some cases it is possible to pump out a fine sand and pump in gravel sand to improve the flow-in rate. The author discusses the economics of water production from different types of wells and springs. For water-supply purposes the most efficient method of getting the water is by wind pumps. For irrigation purposes buried or floating artesian pumps should be used. The author advocates maximum use of underground water for irrigation and watering. There are 4 tables, 1 set of graphs and 3 Soviet references.

Card 2/2

ASSOCIATION: VSEGINGEO

VOLOD'KO, I. F.

"Gravel Filters for Drilled Wells," report given at Soviet Conference on Construction Problems of Water-Well Filters, Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, No 5, 1950.

All-Union Research Institute of Water Supply, Sewerage, Hydrotechnical Constructions, and Engineering Hydrogeology.

Digest W-15118, 10 Nov 50

VOLOD'KO, I. F.

26364 Graviynyye fil'try burovyth skvazhin. Gidrotekhnika i melioratsiya, 1949, No. 2, s. 26-33.

SO: LETOPIS' NO. 35, 1949

TSIKLAURI, David Semenovich, dots., kand. tekhn. nauk; VOLOD'KO, I.F., kand. tekhn. nauk, nauchn. red.; SHERSHUKOVA, M.A., red.

[Water supply in fields and pastures] Polevoe i pastbishchnoe vodosnabzhenie. Moskva, Stroiizdat, 1964. 162 p. (MIRA 17:9)

PIVIN, I.I., inzhener.

Remarks on I.F. Volod'ko's article "Dependence of the lowering of the water level in a well upon the diameter and length of a filter pump." Gidr.i mel. 5 no.5:74-77 Ap '53. (MLRA 6:5)

(Volod'ko, I.F.) (Wells)

VOLOD'KO, Ivan Fomich; KUNDZICH, Mikhail Mikhaylovich; ORLOVA, V.P., red.; SOKOLOVA, N.N., tekhn. red.

[Irrigation and drinking water for pastures of the U.S.S.R.] Odvodnenie pastbishch v SSSR. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 99 p. (MIRA 11:8)
(Pastures and meadows) (Water supply, Rural)

TSIKLAURI, David Semenovich, dots., kand. tekhn. nauk; VOLOD'KO, I.F., kand. tekhn. nauk, nauchn. red.; SHERSHUKOVA, M.A., red.

[Water supply for fields and pastures] Polevoe i pastbishchnoe vodosnabzhenie. Moskva, Stroiizdat, 1964. 162 p. (MIRA 17:5)

ANATOL'YEVSKIY, Pavel Aramovich; MALOYAN, Arminak Vladimirovich; SHNEYEROV, Osher Mendeleyevich; VOLOD'KO, I.F., kand. tekhn. nauk, nauchn. red.; DAVLETSHIN, Z.V., inzh.;nauchn.red.; KAZ'MIN-BALASHOV, A.I., inzh., nauchn. red.; KAYESHKOVA,S.M., ved. red.

[Operation and repair of water wells] Ekspluatatsiia i remont vodianykh skvazhin. Moskva, Izd-vo "Nedra," 1964. 211 p. (MIRA 17:5)

VOLOD'KO I.F.

BORISOV, Arkhip Markovich; VOLOD'KO, I.F.; KASHEKOV, L.Ya.; SMELYANSKIY, V.A., red.; GURKEVICH, M.M., tekhn.red.

[The construction of well shafts] Stroitel'stvo shakhtnykh kolodtsev. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 141 p. (MIRA 11:1)

(Wells)

SITKOVSKIY, P.A.; KOMAROV, G.V.; BRUSENTSEV, V.F.; KREMENETSKIY, N.N.; MAMAYEV, M.G., kand.tekhn.nauk; SMIRNOV, A.V., kand.tekhn.nauk; AFANAS'YEV, I.V.; VOLOD'KO, I.F., kand.tekhn.nauk; BEGLYAROV, S.A.; KONDRAT'YEV, V.V.; KARLINSKAYA, M.I.; NIKOLAYEV, M.I., kand.tekhn. nauk; DOROKHOV, S.M.; PISHCHUROV, P.V.; KLIMENTOVA, A.V.; ROZENBLAT, Zh.I.; PANDEYEV, V.V., kand.tekhn.nauk; KULIKOV, P.Ye.; SHIMANOVICH, S.V.; DELITSIN, M.V., retsenzent; BRAUDE, I.D., retsenzent; BARYSHEV, A.M.; retsenzent; GRIGORYANTS, A.S., retsenzent; IGNATYUK, G.L., retsenzent; KALABUGIN, A.Ya., retsenzent; KREMENETSKIY, N.D., retsenzent; POPOV, K.V., retsenzent; ORLOVA, V.P., red.; LETNEV, V.Ya., red.; SOKOLOVA, M.N., tekhn.red.; FEDOTOVA, A.F., tekhn.red.

[Handbook for hydraulic and agricultural engineers] Spravochnik gidrotekhnika melioratora. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 766 p. (MIRA 12:3)

(Hydraulic engineering) (Agricultural engineering)

DATSYKOV, V.V.; VOLOD'KO, I.F.; KUNDZICH, M.M.; PESTRYAKOV, A.I., red.; GOR'KOVA, Z.D., tekhn.red.; PROKOP'YEVA, L.N., tekhn.red.

[Water supply on desert pastures] Obvodnenie pustynnykh pastbishch. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 183 p. (MIRA 14:2)

(Pastures and meadows) (Water-supply, Rural)

VOLOD'KO, I.F.

Utilization of underground waters for irrigation and water supply. Moskva, Gos. izd-vo del'khoz. lit-ry, 1953.

214 p. (54-22414) TC805.V6 1. Irrigation 2. Water-supply engineering. 3. Water, Underground.

VOLOD'KO, I.F.

AUTHOR: Lutskiy, Ya.Ye. SOV/99-58-10-12/13

TITLE: A Useful Book (Poleznaya kniga)

PERIODICAL: Gidrotekhnika i melioratsiya, 1958, Nr 10, pp 59-60 (USSR)

ABSTRACT: The author gives a detailed description and criticism of the book "Water Supply of Pastures in the USSR", by I.F. Volod'-ko and M.M. Kundzich.

1. Agriculture 2. Irrigation systems 3. Literature

Card 1/1

VOLOD'KO, I.F., kand.tekhn.nauk

Water supply is an urgent problem in sections where water is difficult to obtain. Zhel. dor. transp. 40 no.9:18-23 S '58. (MIRA 11:10)
(Railroads--Water supply)

VOLOD'KO, Ivan Fomich, kandidat tekhnicheskikh nauk; YERMAKOV, F.L., [illegible]

[Using underground water for irrigation and water supply] Ispol'zovanie podsemnykh vod dlia orosheniia i vodosnabzheniia. Izd. 2-oe, dop. Moskva, Gos.izd-vo selkhoz.lit-ry, 1955. 327 p. (MLRA 9:2)
(Water, Underground)

Volod'ko, Ivan Fomich

Ispol'Zovaniye Podzemnykh Vod Dlya Orosheniya I Vodosnabzheniya
(The Utilization of Ground Water for Irrigation and Water Supply)
Izd. 2., Dop.

Moskva, Sel'Khozgiz, 1955.

327 P. Illus., Diagrs., Tables.

Bibliographical Footnotes.

VOLOD'KO, Ivan Fomich; DOBROVOL'SKIY, N.F.; KASHEKOV, L.Ya.; PASHENKOV, Ya.M. VOL'FOVSKAYA, V.N., redaktor; DUBROVSKIY, V.A., redaktor; SOKOLOVA, N.N., tekhnicheskiy redaktor

[Construction of driven wells] Stroitel'stvo trubchatykh kolodtsev. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 175 p. (MLRA 9:8)
(Wells))

VOLODKIN, I. G. (Zootechnician)

"Activate the fight against flies with concrete zooveterinary measures."

80: Veterinariia 24 (3) 1947, p. 39

Piatigorsk Selective Fowl Sovkhoz

VOLOD'KO, I. I.

"Architecture of Residential Buildings in the Kolkhozes of the Belorussian SSR." Cand Arch Sci, Belorussian Architectural Inst imeni I. V. Stalin, Min Higher Education Minsk, 1955. (KL, No 12, Mar 56)

SO: Sum. No. 670, 29 Sep 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

VOLOD'KO, I.Ye.; PILYAYEV, V.V.; NESTEROVA, Ye. V.

Coke by-products industry should furnish agriculture with herbicides.
Koks i khim. no.1:41-43 '62. (MIRA 15:2)

1.Leningradskiy sel'skokhozyaystvennyy institut (for Volod'ko).
2.Leningradskiy koksogazovyy zavod (for Pilyayev).
(Coke industry--By-products)(Herbicides)

VOLOD'KO, K.

Improved PPM-2 loading machine. Mast. ugl. 3 no.6:21 Je '54. (MLRA 7:7)

1. Konstruktor Aleksandrovskogo mashinostroitel'nogo zavoda im. Voroshilova.
(Coal mining machinery)

MAKSIMOV, V. A.; KOSTYLEV, A. D.; GURKOV, K. S.; VOLODIKO, K. P.; YUSHCHENKO, A. I.; SEDYSHEV, V. F.; KOLESNIKOV, A. T. YAGODIN, A. I.; PONOMARENKO, Yu. F.; POLKOV, A. N.; BELAK, N. A.

BPM-1 vibrating drill and loader. Gor. zhur. no.10:53-56 O '62. (MIRA 15:10)

(Mining machinery)

RENGEVICH, A.A., kand.tekhn.nauk; SHAKHTAR', P.S., inzh.; VOLOD'KO, K.P., inzh.; YUSHCHENKO, A.I., inzh.; GALUSHKO, M.K., kand.tekhn.nauk; KUZNETSOV, B.A., kand.tekhn.nauk; KUDELYA, G.Ya., inzh.; MEKHEDA, M.K., inzh.; OKHRIMCHUK, O.Kh., tekhnik

Causes of the breaking of axles of electric mine locomotives. Vop. rud. transp. no.6:192-203 '62. (MIRA 15:8)

1. Dnepropetrovskiy gornyy institut (for Rengevich, Kuznetsov, Kudelya, Mekheda, Okhrimchuk). 2. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Shakhtar', Galushko). 3. Aleksandrovskiy mashinostroitel'nyy zavod (for Volod'ko, Yushchenko).
(Mine railroads) (Axles--Testing)

KOSTYLEV, A.D.; RODIONOV, G.V.; GURKOV, K.S.; MAKSIMOV, V.A.; VOLOD'KO, K.P.

Vibrating working part of a loader. Gor.zhur. no.8:71 Ag '62. (MIRA 15:8)

(Mining machinery)

MIKHIREV, P.A.; KOSTYLEV, A.D.; VOLOD'KO, K.P.; SAVKIN, M.M.; MOGILEVSKIY, V.M.

Means for automatic control of the operation of a single-bucket loader. Gor. zhur. no.3:69-70 Mr '63. (MIRA 16:4)

YUSHCHENKO, Aleksey Ivanovich; VOLOD'KO, Konstantin Petrovich; EMLYANEV, V.S., otvetstvennyy redaktor; D'YAKOVA, G.B., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[PPM-3 rock loading machine] Porodpogruzhochnaia mashina PPM-3. Moskva, Ugletekhizdat, 1956. 106 p. (MLRA 10:3)
(Loading and unloading) (Coal mining machinery)

L 5446-66 EWT(l)/EWT(m)/T/EWP(j) IJP(c) RM
ACC NR: AP5025092 SOURCE CODE: UR/0368/65/003/003/0248/0253

AUTHORS: Volod'ko, L. V.; Turetskaya, Ye. A.

ORG: none

TITLE: Luminescence spectra of organic solutions of uranyl salts for various stages of de-excitation

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 3, 1965, 248-253

TOPIC TAGS: luminescence, luminescence research, luminescence spectrum, luminescence yield, luminescence electron

ABSTRACT: Luminescence spectra and damping curves for various stages of de-excitation of methanol, ethanol, propanol, 2-methyl ethanol, butanol, 2-methyl propanol, aceton methylethylketone and diethyl ether solutions of uranyl nitrate and uranyl acetate at 77K were investigated. The work was undertaken to elucidate the complex electronic spectral structure of uranyl salt solutions. The apparatus used in the investigation is shown schematically (see Fig. 1),

Card 1/4 UDC: 535.37

ACC NR: AP5025092

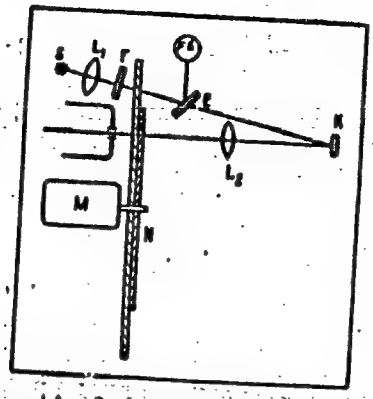

Fig. 1. Schematic of the optical installation: K- specimen, S - light source, L_1 - quartz lens, F - 365 mμ filter, E - semi-transparent mirror, FE - feedback stabilizing source S, N - universal phosphoroscope, M - rotating motors

and the experimental results are shown graphically (see Fig. 2).

Card 2/4

L 5446-66

ACC NR: AP5025092

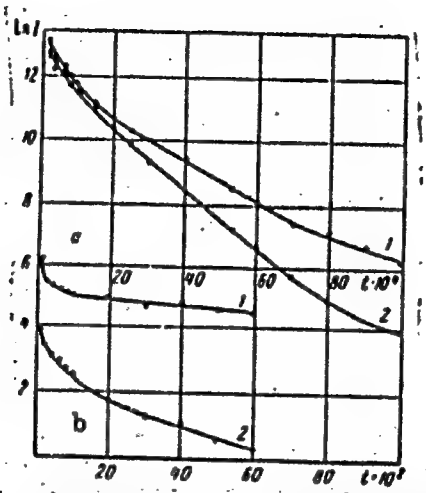

Fig. 2. Luminescence damping curves for propanol solution of (1) uranyl acetate and (2) uranyl nitrate at 77K. a - time scale 10^{-4} sec; b - time scale 10^{-2} sec

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L 5446-66

ACC NR: AP5025092

The lifetimes of the excited states in the various solutions were determined and are presented in tabular form. It is concluded that in each solution three different luminescence centers are present, two of which belong to two different uranyl complexes—most probably to the subhydrates of the uranyl salts. Orig. art. has: 3 tables and 3 graphs.

SUB CODE: OP,GC/ SUBM DATE: 29Mar65/ ORIG REF: 008/ OTH REF: 00

Card 4/4 MD

VOLOBUYEV, L.V.; KOMYAK, A.I.; SLEPTSOV, L.Ye.

Infrared absorption spectrum of sodium uranyl acetate single crystals. Zhur. prikl. spekt. 3 no.1:65-71 Jl '65. (MIRA 18:9)

L.V. Volod'ko

USSR/Physical Chemistry - Molecule, Chemical Bond. B-4

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 90

Author : A.N. Sevchenko, L.V. Volod'ko

Inst : Academy of Sciences of USSR

Title : Luminescence of Solutions of Uranyl Salts.

Orig Pub : Izv. AN SSSR, Ser. fiz., 1956, 20, No 4, 464-470

Abstract : The luminescence (L) of solutions of uranyl salts in various organic solvents was investigated. It was shown that L always was observed, if the solution temperature had been low enough. This shows that the "absence" of L of uranyl salts in organic solvents at room temperature is connected with quenching by the temperature. There are no sharp bands characteristical of crystal spectra in the observed spectra. The general appearance of a sectrum depends essentially on the solvent and strongly differs

Card 1/2

USSR/Physical Chemistry - Molecule, Chemical Bond. B-4

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 90

from crystal spectra by the energy distribution among separate bands. The authors arrive at the conclusion that the emission of uranyl ions may not be investigated independently of the surrounding medium.

Card 2/2

L 29678-66
ACC NR: AP6012856 SOURCE CODE: UR/0386/66/004/004/0327/0329

35
B

AUTHOR: Volod'ko, L. V.; Turetskaya, Ye. A.

ORG: none

TITLE: Dependence of the luminescence spectra of organic solutions of uranyl salts on the wavelength of the exciting light

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 327-329

TOPIC TAGS: uranyl nitrate, uranium compound, luminescence spectrum, excited state, light excitation, optic center, organic solvent

ABSTRACT: This is a continuation of earlier work by the authors (ZhPS v. 3, 248, 1965) dealing with the emission spectra and the durations of the excited states of uranyl salt solutions. To check whether the experimentally measured absorption spectrum of the solutions in questions is, in analogy with the emission spectrum, a composite spectrum due to two different absorption centers, the authors have investigated the excitation spectra of solutions of uranyl salts in different solvents at fixed luminescene wavelengths. The experimental setup was described elsewhere (DAN SSSR v. 155, 197, 1964). Solutions of uranyl acetate in propyl and ethyl alcohol and of uranyl nitrate in the same solvents were investigated at 77K.

UDC: 535.37

Card 1/2

L 29678-66
ACC NR: AP6012856 0

Measurements made at wavelengths corresponding to the maxima of the spectra of the salts showed that the energy migration between the different complexes of the investigated solution is either negligible or nonexistent. Measurements of the luminescence spectra at different wavelengths of the exciting light and of the dependence of the emission spectra on the wavelengths of the excited light demonstrated the presence of two absorption centers and luminescence centers in each solution and the weak interaction between them. The authors thank V. P. Bobrovich and G. S. Kembrovskiy for providing the apparatus for the measurement of the excitation spectra. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 02Jul65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 10/

L 31035-66

ACC NR: AP5027667 SOURCE CODE: UR/0051/65/019/005/0751/0758

AUTHOR: Volod'ko, L. V.

ORG: none

TITLE: Luminescence spectra and structure of hydrated uranyl nitrates

SOURCE: Optika i spektroskopiya, v. 19, no. 5, 1965, 751-758

TOPIC TAGS: uranyl nitrate, luminescence, molecular structure, vibration frequency, luminescence spectrum, IR absorption, vibration frequency

ABSTRACT: A review is given of the discussion in the literature on the structure of uranyl nitrates provoked by the interpretation of B. M. Gatehouse and A. H. Comyns (J. Chem. Soc. 3965, 1958) of the IR spectra of $UO_2(NO_3)_2$ crystallohydrates based on the pattern of the nitrate-group coordinated by U. In the present study the literature data were used for an interpretation of the luminescence spectra at 90K of the $UO_2(NO_3)_2$ crystallohydrates containing 6, 3, and 2 molecules of light and heavy water. The frequencies of the IR absorption and luminescence spectra are given in the table for $[UO_2(NO_3)_2 \cdot 6H_2O$, $UO_2(N)_3]_2 \cdot 6D_2O$, $UO_2(NO_3)_2 \cdot 3H_2O$, $UO_2(NO_3)_2 \cdot 3D_2O$, $UO_2(NO_3)_2 \cdot 2H_2O$ and $UO_2(NO_3)_2 \cdot 2D_2O$. The presence in the luminescence spectra of the vibration frequencies of the nitrate-group and H_2O molecules indicated the reaction of electron shells of these groups with uranyl. The forces of these reactions were as strong as was indicated by the value of the splitting of antisymmetrical stretching of the vibrations $\nu_3(E)=1380$ cm^{-1} of NO_3^- ion in the point group D_{3h} into

Card 1/2 UDC: 535.37 : 541.49

components $\nu_1(A_1) = 1310\ cm^{-1}$ and $\nu_4(B_1) = 1500\ cm^{-1}$ in the point group C_{2v} which occured during the coordination of the nitrate group by uranyl ion. Stable complex uranyl compounds were formed by the donor - acceptor bonds through capturing by U of the 2p-electron pair (nondivided) of the ligand oxygen (i.e., the closed electron shell of the molecule). The frequencies of vibrations of the nitrate group and uranyl in the luminescence spectrum of the $UO_2(NO_3)_2 \cdot 6H_2O$ were very near to the values observed in the spectra of the lower hydrates of uranyl nitrate. This indicated that the $UO_2(NO_3)_2 \cdot 2H_2O$ molecules were the main structural units in all the crystallohydrates studied. The fact that the IR spectrum of the $UO_2(NO_3)_2 \cdot 6H_2O$ reflected the frequency of symmetrical stretching vibrations of uranyl molecules suggested that the symmetry of uranyl molecules in the $[UO_2(NO_3)_2(H_2O)_2] \cdot 4H_2O$ was evidently lower than in bi- and tri-H_2O nitrates. Correspondingly, the U-O bond in the nitrate group of the $UO_2(NO_3)_2 \cdot 6H_2O$ was weaker than in the lower hydrates because the difference $\nu_4 - \nu_1$, characterizing the degree of deviation of the NO^- ion from the D_{3h} symmetry, was smaller in the $UO_2(NO_3)_2 \cdot 6H_2O$ than in the lower hydrates. The author thanks A. N. Sevchenko for his attention to this work. Orig. art. has: 1 table.

SUB CODE: 07,20/ SUBM DATE: 11May65/ ORIG REF: 006/ OTH REF: 007

L 65222-65

ACCESSION NR: AR5014402 UR/0058/65/000/004/D054/D054

SOURCE: Ref. zh. Fizika, Abs. 4D410

AUTHOR: Volod'ko, L. V.; Sevchenko, A. N.; Umreyko, D. S.

TITLE: The effect of medium and temperature on the probability of transitions in the electron spectra of uranyl compounds

CITED SOURCE: Tr. Komis. po spektroskopii AN SSSR, vyp. 1, 1964, 672-678

TOPIC TAGS: uranium compound, electron spectrum, electron transition

TRANSLATION: The authors investigate the cause of temperature quenching in solutions of uranyl salts. A relationship is found between the probability of emission and overlap of electron transitions in the absorption spectra. The value of the overlap is determined by the nature and structure of the immediate environment of the uranyl ion.

SUB CODE: NP ENCL: 00

Card 1/1

L 4428-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EED(b)-3 IJP(c) JD

ACCESSION NR: AP5018847 UR/0368/65/003/001/0065/0071

535.343

AUTHORS: Volod'ko, L. V.; Komyak, A. I.; Sleptsov, L. Ye.

TITLE: Infrared absorption spectrum of single-crystal sodium uranyl acetate

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 1, 1965, 65-71

TOPIC TAGS: sodium compound, uranium compound, ir spectrum, absorption spectrum, crystal symmetry, acetate

ABSTRACT: The investigated crystals were grown from an aqueous solution by free evaporation. Plane parallel plates measuring 6 x 9 mm and 0.15, 0.075, and 0.032 mm thick were cut from the produced single crystals. The spectra were recorded with an infrared spectrometer (UR-10) in the 400 -- 5000 cm^{-1} range at room temperature. The frequencies of the maxima of the absorption bands are listed and compared with investigations on powdered sodium uranyl acetate (L. H. Jones, J. Chem. Phys. v. 23, 2105, 1955). Although the agreement between

Card 1/2

L 4428-66

ACCESSION NR: AP5018847

3

the values are good, the present results show some singularities in the absorption spectrum of sodium uranyl acetate which were not noted by Jones. These differences are attributed to singularities in the structure of the sodium uranyl acetate crystal and are manifest primarily in a splitting of many clearly pronounced absorption bands into three components. This splitting is explained by means of a group-theoretical analysis. The amount of the splitting is in agreement with that observed earlier in the luminescence spectrum of crystalline sodium uranyl acetate at liquid-hydrogen temperature. The internal vibrations of the complex uranyl triacetate ion in the crystal are shown to split into several components, which are assigned to various symmetry groups. 'The authors thank Academician of AN BSSR A. N. Sevchenko for continuous interest in this research.' Orig. art. has: 3 figures, 2 formulas, and 3 tables.

ASSOCIATION: None

SUBMITTED: 15Mar65 ENCL: 00 SUB CODE: OP, SS

NR REF SOV: 002 OTHER: 005

Card 2/2

ACCESSION NR: AP5021489 UR/0368/65/003/002/0134/0141
535.343

AUTHOR: Volod'ko, L. V.; Komyak, A. I.; Sleptsov, L. Ye.

TITLE: Luminescence spectrum and polarization of crystalline sodium uranyl acetate

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 2, 1965, 134-141

TOPIC TAGS: luminescence spectrum, single crystal, crystal optic property

ABSTRACT: The authors studied the luminescence spectrum of sodium uranyl acetate single crystals at 77°K. The crystals were grown from an aqueous solution of the salt by free evaporation at room temperature. Specimens with well developed natu-

[illegible] filled with liquid nitrogen. It was found that slow cooling of the crystal to [illegible]° causes no additional imperfections in the structure (cracks, erosion of the [illegible] dispersion of 5.2 Å/mm was used for studying the luminescence spectra. The re-

L 65236-65

ACCESSION NR: AP5021489

ceiver was an FEU-27 photomultiplier cooled by dry ice to -70°C. The light flux was modulated by a frequency of 21 cps with the aid of an electromagnetic vibra-

[illegible] the red end of the spectrum. The remaining lines of the spectrum are unpolarized. [illegible] ex[illegible]

DKSsh-1000 xenon lamp were used for excitation of luminescence on various wave-[illegible]

Card 2/4

L 65236-65

ACCESSION NR: AP5021489

3

complex $UO_2(CH_3COO)_3^-$ ion. It is assumed that the lines could not be due to external [illegible] crystal lattice, since these should have considerably lower fre- [illegible] groups and the relative small forces of interaction between molecules. It is suggested that the luminescence activity of these crystals is due to complex uranyl triacetate ions which [illegible] symmetry. In conclusion, the authors are sincere- [illegible]

ASSOCIATION: none

SUBMITTED: 25Mar65 ENCL: 01 SUB CODE: OP

NO REF SOV: 012 OTHER: 003

Card 3/4

L 65236-65

ACCESSION NR AF [illegible]

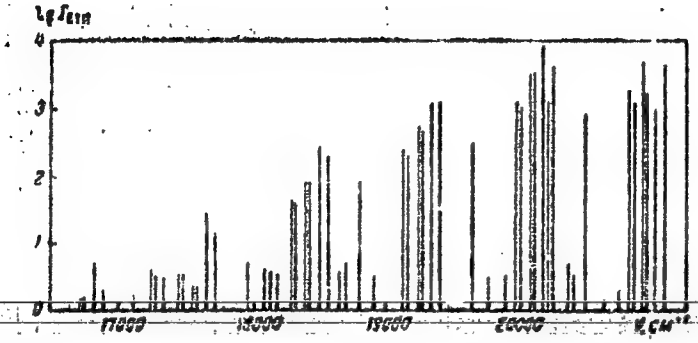

Fig. 1. Luminescence spectrum of a sodium uranyl acetate single crystal at 77°K.

Card 4/4

VOLOD'KO, L.V. [Valadz'ko, L.V.]; UMREYKO, D.S. [Umreika, D.S.]

Temperature dependence and nature of electron spectra of organic solutions of uranyl salts. Vestsi AN BSSR. Ser.fiz.-mat.nav. no.1:83-89 '65. (MIRA 19:1)

L 13777-65 ASD(m)-3/SSD/BSD/AS(mp)-2/AFWL/ESD(gs)/ESD(t)

ACCESSION NR: AP4044847 S/0051/64/017/003/0356/0363

AUTHOR: Volod'ko, L. V.; Sevchenko, A. N.; Umreyko, D. S. B

TITLE: Temperature dependence of electron spectra of inorganic solutions of uranyl salts

SOURCE: Optika i spektroskopiya, v. 17, no. 3, 1964, 356-363

TOPIC TAGS: electron spectrum, temperature dependence, fluorescence, uranyl radical, excitation spectrum, luminescence spectrum

ABSTRACT: Investigations of electron spectra at low temperatures are important both from the point of view of determining the nature of the spectra themselves and from the point of view of explaining the mechanism of fluorescence of uranyl compounds and the concomitant redistribution of the excitation energy over the various channels. The uranyl salts were dissolved in inorganic acids having like anions, and the absorption spectra were recorded with an SF-10 glass automatic recording double-beam spectrophotometer in which the original cuvette was replaced by a thermostatic chamber holding cuvettes filled with the investigated solution and solvent. The test apparatus

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L 13777-65

ACCESSION NR: AP4044847

and procedure are described. The decrease in temperature was shown to be accompanied by a narrowing of the fluorescence band and by a monotonic shift towards the short-wave region. The form of the spectral bands also changed with variation of the temperature. On the other hand, the energy distribution over the fluorescence spectrum of acid solutions of the investigated uranyl salts is practically independent of the temperature. An analysis and the resolution of the different bands indicate that the absorption spectrum of the uranyl ions has a complicated nature in the visible region and consists of several spectra, each corresponding to a group of optical transitions into its own electronic excited state. The transition between the first excited state and the ground state form a luminescence spectrum and a long-wave absorption spectrum which have mirror symmetry properties. The afterglow and the quantum yield of fluorescence of the investigated inorganic solutions increase with decreasing temperature. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: None

Card 2/3

L 13777-65

ACCESSION NR: AP4044847

SUBMITTED: 17Jul63 ENC: 01

SUB CODE: OP NO REF SOV: 004 OTHER: 002

Card 3/3

VOLOD'KO, L.V.; SEVCHENKO, A.N., akad.; UMRYKO, D.S.

Interpretation of electronic and vibrational absorption spectra of uranyl nitrates. Dokl. AN SSSR 135 no.3:560-563 N '60. (MIRA 13:12)

1. Belorusskiy gosudarstvennyy universitet im.V.I.Lenina. 2.Akademiya nauk BSSR (for Sevchenko).
(Uranyl nitrate—Spectra)

85232

S/048/60/024/006/025/030/XX
B013/B067

24.3500

AUTHORS: Volod'ko, L. V., Sevchenko, A. N., and Umreyko, D. S.

TITLE: The Agreement Between the Absorption and Luminescence Spectra of the Solutions of Uranyl Compounds

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 6, pp. 749-751

TEXT: At room temperature, the luminescence and absorption spectra of uranyl solutions show no mirror symmetry although V. L. Levshin (Ref. 1) observed the presence of a certain mirror symmetry in 1937. The observance of the conditions necessary for producing absorption and emission spectra with mirror symmetry offers the possibility of explaining the degree of deviation of the spectra of uranyl solutions from mirror symmetry and the reasons of this deviation . Absorption and luminescence spectra of 0.1 M uranyl sulfate solution at room temperature were calculated. The frequency of the pure electron transition was determined by comparing the luminescence spectra of the above-mentioned solution with the spectrum of crystalline uranyl sulfate at -185°C and -269°C. The frequency of pure electron

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transition in the solution is shifted by 50 cm^{-1} toward short waves, and amounts to about 20,380 cm^{-1}. The frequency of perfectly symmetrical stretching vibrations of the uranyl ion amounts to ~700 cm^{-1} in the excited electron state and to ~850 cm^{-1} in the non-excited state. Fig. 1 shows that the absorption spectrum of an aqueous uranyl sulfate solution is much more complex than the calculated absorption spectrum which is quasisymmetrical with respect to the spectrum of fluorescence. The disagreement between the experimental and the calculated absorption spectrum may be caused by the presence of several excited electron states. On the basis of studies of the Zeeman effect and of the measurements of polarization of spectral lines of a large number of crystalline uranyl salts, Dieke and Duncan (Ref. 6) divided the lines which they had studied into four series. The different behavior of these lines in a magnetic field and their different polarization prove that these groups of lines are caused by the transitions of the uranyl ion into different electron states (Fig. 2). By applying mirror symmetry, one of the electron states mentioned by Dieke and Duncan could be observed in uranyl compounds, i.e., the

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The Agreement Between the Absorption and Luminescence Spectra of the Solutions of Uranyl Compounds

S/048/60/024/006/025/030/XX
B013/B067

"series of fluorescence". The integral absorption of the quasisymmetrical ("fluorescence") electron state is about 10% of the total absorption of the visible region of the spectrum. Consequently, the main absorption of uranyl salt solutions in this region takes place at room temperature as a result of $\Sigma \rightarrow \Pi$ transitions. These transitions cause the formation of the "magnetic series". The present paper was read at the Eighth Conference on Luminescence (Molecular Luminescence and Luminescence Analysis) which took place in Minsk from October 19 to 24, 1959. There are 2 figures and 6 references: 4 Soviet, 1 French, and 1 US.

ASSOCIATION: Belorusskiy gos. universitet im. V. I. Lenina (Belorussian State University imeni V. I. Lenin)

Card 3/3

VOLODIKO, L.V.; SEVCHENKO, A.N.; UMREYKO, D.S.

Temperature dependence and nature of electron absorption spectra of uranyl compounds. Izv. AN SSSR Ser. fiz. 27 no.5: 651-655 My '63. (MIRA 16:6)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.
(Uranyl compounds--Absorption spectra)

86035
S/020/60/135/003/014/039
B019/B077

21.3100

AUTHORS: Volod'ko, L. V., Sevchenko, A. N., Academician of the AS BSSR, and Umreyko, D. S.

TITLE: An Interpretation of the Electron and Vibration Spectra of Uranyl Nitrates

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 3, pp. 560-563

TEXT: First, the authors discuss the well-known interpretation of the 860 cm^{-1}, 940 cm^{-1}, and 210 cm^{-1} uranyl salt frequencies. According to A. N. Sevchenko and B. I. Stepanov (Ref. 4) there are also harmonics and composite frequencies of the fundamental frequencies of UO_2^{++} ions in the infrared absorption spectrum. Ya. I. Ryskin interpreted the absorption spectrum obtained from etheric and ketonic solutions of uranyl nitrate on the basis of the oscillations of the free NO_3^- ion. The frequency deviations are explained through symmetrical disturbances of the NO_3^- ion.

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An Interpretation of the Electron and Vibration Spectra of Uranyl Nitrates

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B019/B077

These four natural frequencies are given: 1050 cm^{-1}, 830 cm^{-1}, 1390 cm^{-1}, and 720 cm^{-1}. A discussing of the results of other authors leads to the assumption that in the infrared absorption spectrum of uranyl nitrate there are not only vibrations of the UO_2^{++} ion but also a considerable number of vibrations which are close to the vibrations of the NO_3^- anion. The interpretation of these frequencies points to a covalent binding characteristic of the nitrate anion with the uranyl ion. Tests which the authors conducted to study the absorption dichroism and the dependence of the degree of polarisation from the frequency of the exciting light showed up the existence of four electron transitions in the examined interval from 20 to $29 \cdot 10^3$ cm^{-1}. An analysis for the cause of the missing mirror symmetry in these absorption spectra and the emission of uranyl compounds leads also to the conclusion that several excited electron states exist in the uranyl ion. There are 2 figures, 1 table, and 10 references: 5 Soviet, 1 Indian, and 1 US.

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86035

An Interpretation of the Electron and Vibration Spectra of Uranyl Nitrates

S/020/60/135/003/014/039
B019/B077

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina (Belorussian State University imeni V. I. Lenin)

SUBMITTED: July 25, 1960

Card 3/3

VOLOD'KO, L.V.

S/170/60/003/008/014/014
B019/B054

AUTHORS: Volod'ko, L. V., Umreyko, D. S.

TITLE: A Universal Double-disk Phosphoroscope

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 8, pp. 120 - 124

TEXT: The authors report on a Becquerel phosphoroscope which was developed at the authors' laboratory and does practically not limit the dimensions of the chamber of the samples investigated. Thus, it is possible to use a thermostatic cell and to change the angle between the exciting light flux and the direction of observation within a wide range. The instrument can easily be equipped with optical standard devices (monochromator, spectrograph, etc.). The construction of the instrument is thoroughly described with the aid of Fig. 1. In a short theoretical investigation it is shown that oscillations of the intensity of the exciting radiation and changes in the number of revolutions of the motor during the experiment exert a strong influence on the intensity of luminescence which is recorded by measurements. Proceeding from

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A Universal Double-disk Phosphoroscope

S/170/60/003/008/014/014
B019/B054

formula (3) for the damping of luminescence after excitation is stopped, formula (5) is derived for the energy absorbed by the receiver. Further, the authors discuss the influence of the changes in observational conditions exercised on the accuracy of measurements. S. I. Vavilov (Ref. 7) is mentioned. There are 1 figure and 7 references: 4 Soviet, 2 French, and 1 German.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina g. Minsk (Belorussian State University imeni V. I. Lenin, Minsk)

SUBMITTED: November 14, 1959

Card 2/2

VOLOD'KO, L.V., Cand Phys Math Sci--(diss) "Effect of the medium on the spectroscopic properties of uranyl compounds." Minsk, 1959. 8 pp (Belorussian State U im V.I. Lenin. Chair of Physical Optics), 100 copies (KL,22-58,101)

Volod'ko, L. V.

24(7),24(0)

AUTHOR: Stepanov, B. I., Academician AS Belorusskaya SSR SOV/30-59-1-9/57

TITLE: Investigations by Belorussian Scientists in the Field of Spectroscopy and Luminescence (Raboty belorusskikh uchenykh po spektroskopii i lyuminestsentsii)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 68-76 (USSR)

ABSTRACT: These investigations are being carried out at the Institut fiziki i matematiki (Institute of Physics and Mathematics) and the fizicheskiy fakul'tet Belorusskogo universiteta (Physics Department, Belorussian University) under the direction of B. I. Stepanov, A. N. Sevchenko, M. A. Yel'yashevich, Academicians AS BSSR, and F. I. Fedorov, Corresponding Member, Academy of Sciences, BSSR. In the field of theoretical spectroscopy, the investigations by P. A. Apanasevich, B. I. Stepanov are mentioned. Further, the following investigations are indicated:

B. I. Stepanov, Ye. S. Khvashchevskaya used the general principles of spectroscopy of negative currents in their examinations.
On the basis of experimental data A. M. Samson obtained important results in the determination of genuine values of optical characteristics of the substance examined.
L. A. Kravtsov, N. P. Ivanov examined calculation methods of reabsorption with large overlapping of absorption and luminescence spectra.
N. A. Borisevich succeeded in obtaining fundamental results in the examination of luminescence of phthalimide vapors. He also showed that the efficiency of quenching collisions may be much less than one.
L. G. Pikulik, under the direction of A. N. Sevchenko, examines the influence of the solvent on the yield of fluorescence as well as the absorption and emission spectra.

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A. N. Sevchenko, G. P. Gurinovich, A. M. Sarzhevskiy examined the luminescence polarization of many combined molecules. At the same time they designed an improved apparatus.
A. N. Sevchenko, V. V. Kuznetsova work in the field of luminescence of rare-earths complexes.
V. A. Pilipovich examined the phenomenon of phosphorescence.
The examinations of optical properties of chlorophyll and related compounds are being carried out in close cooperation with the Institut biologii Akademii nauk BSSR (Institute of Biology, Academy of Sciences, Belorusskaya SSR).
T. N. Godnev, L. A. Kravtsov, N. V. Yefremova examined the absorption and luminescence spectra of a live leaf.
A. N. Sevchenko, G. P. Gurinovich, K. N. Solov'yev, L. A. Kravtsov examined polarization spectra and the dependence of polarization on the wave length of fluorescence.
A. N. Sevchenko, L. V. Volod'ko obtained valuable data of the composition of complex compounds and the nature of intermolecular forces of interaction.
I. P. Shapiro examined the optical and electrical properties of some crystal phosphors.

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A. N. Sevchenko, B. I. Stepanov examined cellulose and its products of transformation.
R. G. Zhbankov, I. N. Yermolenko worked at high pressure in order to study the composition of celluloses by means of spectroscopical methods.
I. N. Yermolenko, R. G. Zhbankov examined the oxidizing kinetics of cellulose by means of nitrogen dioxide, iodic acid and chloride.
R. G. Zhbankov, B. I. Stepanov, A. Ya. Rozenberg, A. I. Ikrygan, A. M. Shishko examined the mercerizing process of cellulose.
M. M. Pavlyuchenko, I. N. Yermolenko examined the oxidation of celluloses with the use of absorption spectroscopy in the ultraviolet range.
M. M. Pavlyuchenko and collaborators spectrophotometrically examined the adsorption of coloring substances on cellulose.
I. N. Yermolenko, N. I. Gavrilov examined the luminescence of cellulose products.
B. I. Stepanov, Yu. I. Chekalinskaya determined the dependence of the spectra of dispersed objects on the reduction ratio, the character of the binding agent, and the layer thickness.

Card 4/9

VOLOD'KO, L.V.

Electron spectra of solutions of uranyl salts. Trudy Inst.fiz.
i mat. AN BSSR no.2:174-188 '57. (MIRA 12:1)
(Uranium compounds--Spectra)

06390

24(7) SOV/170-59-2-8/23

AUTHORS: Sevchenko, A.N., Volod'ko, L.V.

TITLE: Spectroscopic Investigations of Uranyl Compounds

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 2, pp 63-71 (USSR)

ABSTRACT: The authors criticize the viewpoints of previous investigators on the structure of absorption and fluorescence spectra of the uranyl ion UO_2^{++} as contradicting to two experimental findings: the first, by Levshin and Sheremet'yev [Ref 15], that the luminescence spectrum does not depend on the wavelength of excitation light, and the second, by Samoylov [Ref 21], that at a temperature of 4.3°K the spectra of absorption and luminescence overlap very insignificantly. Investigations and conclusions of the other researchers, Stepanov [Ref 17], Vdovenko and Kovaleva [Ref 4], are also cited. The authors obtained crystalline complexes of uranyl nitrate with diethyl ester, acetone, ethyl acetate, nitromethane and ethyl alcohol, and also uranyl acetate with methyl, ethyl and isoamyl alcohols, by the method of preparing crystalline complex uranyl salts from organic solutions. It was established that luminescence spectra of all complex salts distinctly differ from one another and from the spectrum of the initial salt. The comparison of electronic spectra of uranyl compounds shows that their fine

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structure changes with any change in the structure of the medium surrounding the UO_2^{++}- ion. A detailed analysis of the fine structure and factors affecting them leads to the conclusion that the most probable reason for their origination is the participation of active vibrations of the crystalline lattice in the process of light emission and absorption by the UO_2^{++}- ion. In support of their conclusion the authors adduce several experimental data which can not be incorporated in any scheme proposed by the previous investigators, with exception of the scheme by Sevchenko and Stepanov [Ref 17]. Another experimental result of the authors is that the distribution of radiation intensities by frequencies depends essentially on the nature of the solvent, concentration, age and manner of preparation of the solution, temperature and other external factors. Therefore the authors conclude that in the interpretation of electronic spectra of the uranyl compounds, one has to consider not only the geometry of the uranyl ion, but also the geometrical structure of the medium and the nature of interacting molecules, as well as other physico-chemical properties of the surrounding medium. This fact is

Spectroscopic Investigations of Uranyl Compounds

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SOV/170-59-2-8/23

of importance for solving some problems of crystallophysics by means of investigating spectroscopic properties of uranyl compounds.
There are: 2 microphotograms, 1 spectrogram, 1 table and 21 references, 10 of which are Soviet, 2 American, 3 German, 2 Dutch, 1 English, 1 French and 2 Indian.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V.I. Lenina (Belorussian State University imeni V.I. Lenin), Minsk.

Card 3/3

VOLOD'KO, L.V.; SEVCHENKO, A.N.; UMREYKO, D.S.

Correspondence between the absorption and luminescence spectra of solutions of uranyl compounds. Izv.AN SSSR 24 no.6:749-751 Je '60. (MIRA 13:7)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.
(Uranyl compounds--Spectra)

SOV/81-59-16-56085

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 12 (USSR)

AUTHOR: Volod'ko, L V.

TITLE: The Effect of Temperature on Luminescence Spectra of Uranyl Compounds

PERIODICAL: Uch. zap. Belorussk. un-t, 1958, Nr 41, pp 207-217

ABSTRACT: The changes in the luminescence spectra (L) of uranylacetate (I) and uranylnitrate in the crystalline state and in solutions in organic solvents are investigated. It has been shown that the change in the spectra with an increase in temperature strongly depends on the nature of the solvent. The intensity of L of the solution I in glycerol decreases with an increase in temperature, in which case a broadening of the bands without their shifting has been observed. On the contrary, the spectral bands of an aqueous solution I are shifted to the red side with an increase in temperature. Thus in the various solvents the action of temperature is very different. The obtained data cannot be explained from the hypothesis which has been applied up to now, that the L spectra of uranyl salts are caused by the transitions of the isolated UO_2^{2+} ion to the electron-oscillation levels. In this case the dependence of the spectra on the temperature would be equal for all uranyl compounds. Changes in the spectra

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SOV/81-59-16-56085

The Effect of Temperature on Luminescence Spectra of Uranyl Compounds

are determined not only by the temperature, but also by the nature of the interaction with the salt ions, i.e. by the nature and the structure of the medium, in which the uranyl ion is found. The latter determined such characteristics of the spectrum as the frequency of the electron transition, structure and form of the spectrum, the distribution of the intensity over frequencies and also the degree of the effect of the temperature on these parameters.

V. Yermolayev.

Card 2/2

SVCHENKO, A.N.; VOLOD'KO, L.V.

Spectroscopic study of uranyl compounds. Inzh.-fiz.zhur. no.2:63-71 F '59. (MIRA 12:3)

1. Belorusskiy gosudarstvennyy universitet imeni V.I. Lenina, g. Minsk.

(Uranyl compounds--Spectra)

VOLOD'KO, L.V.

16(1); 24(4,5) PHASE I BOOK EXPLOITATION SOV/1899

Akademiya nauk Belorusskoy SSR. Institut fiziki i matematiki

Trudy, vyp. 2. (Transactions of the Institute of Physics and Mathematics, Belorussian SSR Academy of Sciences, Nr 2) Minsk, 1957. 285 p. Errata slip inserted. 750 copies printed.

Ed.: B. I. Stepanov, Academician, BSSR Academy of Sciences; Ed. of Publishing House: L. Marlin; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for mathematicians, physicists, and graduate students in mathematics and physics.

COVERAGE: This book contains a series of articles on recent contributions by members of the Institut fiziki i matematiki (Institute of Physics and Mathematics) of the Academy of Sciences, BSSR, in the fields of radiation, luminescence, optics, and spectroscopy and on the applications to physics of analysis, [illegible] analysis, linear groups, theory of adjustments, and differential equations. The first article contains a brief account of the work of the Institute, including names of scientists and mathematicians connected with it, facilities, scientific accomplishments, and fields of interest.

Transactions of the Institute (Cont.) SOV/1899

Gudkov, T.N., R. V. Yefremova, and L. A. Krasnov. On the Spectral Properties of Chlorophyll and Chlorophyllide Complexes With Protein and Certain Other Compounds 85

Krivetskiy, A. M. Spectroscopic Interaction of Sulphur and Iron in Sources of Light for Spectral Analysis 95

Yakovlevich, A. A. On the Role of Electric Parameters of a Discharge Contour With an Excitation of the Spectrum by a Low-voltage Impulse Discharge 110

Prima, A. M. Calculating the Oscillating Spectra of Silicates 134

Volod'ko, L. V. Electronic Spectra of Solutions of Uranium Salts 176

Stepanov, B.I., and A. P. Prishivalko. On the Theory of Dispersion Light Filters 189

Prishivalko, A. P. The Filtration of Light by Layers of Absorbent Dust 206

Card 3/5

VOLOD'KO, L.V.

Effect of temperature on the luminescence spectra of uranyl compounds. Uch. zap. BGU no.41:207-217 '58. (MIRA 12:3)
(Uranyl compounds--Spectra)
(Luminescence)

VOLOD'KO, L. V.

51-4 -1-5/26

AUTHORS: Volod'ko, L. V. and Sevchenko, A. N.

TITLE: Luminescence Spectra of Complex Uranyl Compounds. I. (Spektry lyuminestsentsii kompleksnykh uranilovykh soyedineniy. I.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp. 40-46. (USSR).

ABSTRACT: The work reported in Refs. 1-2 describes a strong dependence of the luminescence spectra of uranyl sulphate and uranyl nitrate on the number of molecules of water of crystallization. Sevchenko and Stepanov (Ref.3) analysed the luminescence spectra of uranyl compounds and concluded that the fine structure of these spectra at low temperatures is due to transitions between the energy levels of the crystalline lattice. Freyman et al. (Refs.4-5) do not agree with the conclusions of Ref.3. According to these French workers the luminescence spectra of complex salts of

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uranyl nitrate (with ether, acetone and dioxane in the crystal lattice) are identical with the spectra of hydrates of the same nitrate. The negative results of Freyman et al. (Refs.4-5) could be due to the presence of the usual hydrates of uranyl nitrate in all their samples. These hydrates might be formed by the action of atmospheric moisture. To avoid the effects of atmospheric moisture the present authors developed a technique described below. Fig.1 shows the apparatus used to prepare complex uranyl salts. Hydrated salt was placed in a test tube 1, which was joined to a bulb 2 filled with silica gel and connected to a vacuum pump. Vessel 3, connected by a tap 4 to the test tube 1, was filled with a dehydrated liquid

 whose molecules were to replace the molecules of water

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of crystallization in the uranyl salt used. The uranyl salt was dehydrated by heating under vacuum for 4-6 hours at 120-150°C. The temperature was held constant by using a glycerine bath 5 (Fig.1) and a heater with a thermostat. The degree of dehydration was controlled visually by means of luminescence spectrum analysis. Crystallization of complex uranyl salts was carried out at room temperature without access to atmosphere. The luminescence spectra were studied at the liquid-air temperature. The spectra were excited by means of 320-420 mμ frequencies from a mercury lamp. A triple-prism glass spectrograph ИСП-51 was used. The majority

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sharp. Tables 1-6 give the values of wave-numbers and relative intensities of the lines in the fluorescence spectra of complex salts of uranyl nitrate with diethyl ether, ethyl acetate, nitromethane, acetone, methyl alcohol and ethyl alcohol at the liquid-air temperature. Tables 7-9 give similar results for the fluorescence spectra of complex salts of uranyl acetate with ethyl, methyl and isoamyl alcohols. Comparison of the results obtained shows that replacement of molecules of water of crystallization in uranyl salts by molecules of organic substituents causes clear changes in the discrete structure of electron spectra. The number of lines in the spectrum increases on such replacements. The lines become narrower and sharper compared with the

 lines of atomic spectra. The intensities of various

frequencies become more nearly equal along the spectrum. These changes are clearly shown in Fig.2, where microphotograms of luminescence spectra of uranyl nitrate complexes with diethyl ether (1) and acetone (2) and uranyl nitrate hexahydrate (3) are given. The luminescence spectra of different complex salts differ strongly, depending on the chemical nature of the anion or the molecule which replaces water of crystallization. Thus the present results contradict the conclusions of Freyman et al. (Refs. 4-5). A more detailed analysis of the results obtained will be given in the following paper. There are 9 tables, 2 figures and 6 references, of which 3 are Russian, 2 French and 1 American.

Luminescence Spectra of Complex Uranyl Compounds. I. 51-4 -1-5/26

ASSOCIATION: Belorussian State University imeni V.I. Lenin, Minsk. (Belorusskiy gosudarstvennyy universitet im. V. I. Lenina, Minsk.)

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1. Uranyl compounds-Luminescence-Spectra

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VOLOD'KO, L. V.

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AUTHORS: Volod'ko, L. V. and Sevchenko, A. N.

TITLE: Luminescence Spectra of Complex Uranyl Compounds. II. (Spektry lyuminestsentsii kompleksnykh uranilovykh soyedineniy. II)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp. 47-54. (USSR)

ABSTRACT: This paper is the continuation of the preceding one. Fig.1 gives the fluorescence spectra (frequencies and intensities) of complex salts of uranyl nitrate with ethyl alcohol (1), methyl alcohol (2), nitromethane (3), acetone (4), ethyl acetate (5), ether (6), of anhydrous uranyl nitrate (7) and of uranyl nitrate hexahydrate (8). Fig.2 gives the fluorescence spectra of uranyl acetate with isoamyl alcohol (1), ethyl alcohol (2), methyl alcohol (3), of anhydrous uranyl acetate (4) and of uranyl acetate dihydrate (5). Table 1 gives the values of frequencies of the electron transition ν_e, and of valence symmetrical ν_α, anti-symmetrical ν_β

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and deformational ν_γ vibrations of the uranyl ion, present in the first four groups of lines in the spectra of complex compounds of uranyl nitrate. It follows from Table 1 that uranyl ion vibrations are anharmonic. Departures from harmonicity are, however, not great, and they depend on the nature of molecules present in the crystalline lattice. Table 2 gives the relative intensities and the values of the frequency differences $\Delta\nu = \nu_a - \nu$ for the first four groups of lines in the luminescence spectra of uranyl nitrate and uranyl acetate salts. It follows from Table 2 that the structure of the luminescence spectra of uranyl salts cannot be explained only by transitions between electron-vibrational energy levels of the UO_2^{++} ion. According to Table 1 the frequencies

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of vibrations of the uranyl ion change on transition from one group of lines to another due to anharmonicity of symmetrical vibrations, and from one salt to another because of changes in the energy of electron transitions. Thus the differences $\Delta\nu$ in Table 2 should change from group to group and from substance to substance while actually this is not observed. In the spectrum of a given salt the differences $\Delta\nu$ in all groups remain constant within the experimental errors. It is concluded that the fine structure of the luminescence spectra of complex uranyl salts at low temperature is due, mainly, to intramolecular vibrations. This agrees well with the analysis put forward by Sevchenko and

Card 3/4 Stepanov (Refs.1-2), who ascribed the fine structure

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to transitions between the energy levels of the crystalline lattice. The analysis of Refs.1-2 is applicable to the spectra of uranyl salts of different chemical composition without the necessity of additional hypotheses. In addition to crystalline lattice vibrations, certain differences $\Delta\nu$ in Table 2 may be due to, e.g. transitions between electron-vibrational levels of the uranyl ion. The number of such lines in the spectrum is not large. There are 2 figures, 2 tables and 6 references, of which 4 are Russian, 1 English and 1 American.

ASSOCIATION: Belorussian State University imeni V.I. Lenin, Minsk. (Belorusskiy gosudarstvennyy universitet im. V. I. Lenina, Minsk.)

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Card 4/4 1. Uranyl nitrates-Fluoresence-Spectra

VOLOD'KO, L.V.

VOLOD'KO, L.V.; SHVCHENKO, A.N.

Luminescence spectra of complex uranyl compounds. Part 1. Opt. i spektr. 4 no.1:40-46 Ja '58. (MIRA 11:3)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina, Minsk.
(Luminescence) (Complex compounds) (Uranium compounds)

VOLODKO, L.V.

VOLOD'KO, L.V.; SEVCHENKO, A.N.

Luminescence spectra of complex uranyl compounds. Part 2. Opt. i spektr. 4 no.1:47-54 Ja '58. (MIRA 11:3)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina, Minsk.
(Luminescence) (Complex compounds) (Uranium compounds)

SEVCHENKO, A.N.; VOLOD'KO, L.V.

Luminescence of uranyl salt solutions. Izv.AN SSSR Ser.fiz. 20 no.4:464-470 Ap '56. (MIRA 10:1)

1. Institut fiziki i matematiki Akademii nauk BSSR.
(Luminescence) (Fluorescence)

VOLOD'KO, L.V.; UMREYKOV, D.S.

Multipurpose double-disc phosphoroscope. Inzh.-fiz.zhur. no.8: 120-124 Ag '60. (MIRA 13:8)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina, g. Minsk.

(Luminescence)

VOLOD'KO, L.V. [Valodz'ka, L.V.]; UMREYKO, D.S. [Umreika, D.S.]

Influence of secondary processes on the intensity of luminescence of uranyl compounds. Vestsi AN BSSR Ser. fiz.-tekh. nav. no. 1:75-81 '61. (MIRA 14:4)
(Uranyl compounds—Optical properties) (Luminescence)

L 10157-63 EWT(1)/EDS--AFFTC/ASD/ESD-3/SSD

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AUTHOR: Volod'ko, L. V.; Sevchenko, L. V.; Umreyko, D. S. 58 57

TITLE: Temperature dependence and nature of the electronic absorption spectra of uranyl compounds [Report: Eleventh Conference on Luminescence held at Minsk 10-15 Sept. 1962]

SOURCE: Izvestiya AN SSSR. Seriya fizicheskaya, v. 27, no. 5, 1963, 651-655

TOPIC TAGS: absorption, fluorescence, uranyl compounds

ABSTRACT: A distinctive trait of the absorption and luminescence spectra of uranyl compounds is their strong temperature dependence, which reflects changes in the interaction of the uranyl ion with the surrounding medium. Whereas the origin of the fluorescence spectra of uranyl compounds is fairly well known, this is not true of the absorption spectra. Investigation of the temperature dependence of the fluorescence and absorption spectra can help elucidate the nature of the electronic absorption spectra. The authors recorded the fluorescence and absorption of acid and organic solutions of a number of uranyl

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salts in the range from +20 to -183°C. The spectra of uranyl sulfate and potassium uranyl sulfate in sulfuric acid and uranyl phosphate in orthophosphoric acid are presented. Experimental and calculated mirror symmetry of the fluorescence and absorption spectra is compared. It is concluded that absorption involves several different electronic transitions. Orig. art. has: 2 figures.

ASSOCIATION: Belorusskiy gos. universitet im. V. I. Lenina (Belorussian State University)

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